

**ABSTRACT**

An exemplary method of the present invention for performing an injection operation includes providing a water-soluble relative permeability modifier, introducing the water-soluble relative permeability modifier into a subterranean formation; and injecting an aqueous injection fluid into the subterranean formation after introducing the water-soluble relative permeability modifier. An exemplary permeability-modifying injection fluid of the present invention contains water-soluble relative permeability modifier. The water-soluble relative permeability modifiers of the present invention include hydrophobically modified water-soluble polymers, hydrophilically modified water-soluble polymers, and water-soluble polymers without hydrophobic or hydrophilic modification.